

2. Whether different Load-stones will give different Directions? And whether fainter or stronger touches upon one and the same Magnet, will cause any Variation in the Directions? For which purpose, as many Load-stones should be procured, as could be had, and a good number of Needles exactly made, of the same Metal, bigness, and figure?

### P R O P O S A L S

*To try the Effects of the Pneumatick Engine exhausted, in Plants, Seeds, Eggs of Silkworms.*

The Ingenious Dr. Beale did formerly suggest, as follows.

It would be, I think (*saith he*) very well worth the tryal, to see what Effects would be produced on Plants, put into the Pneumatick (or Rarifying) Engine of Mr. Boyle, [with the Earth about their Roots, and flourishing; whether they would not suddenly wither, if the Air were totally taken from them. And particularly to try in the Season, *Cherry-Blossoms*, when partly opened, partly not opened, upon a Branch; to wit, whether the Air may be so attenuated as to blast. But it may be noted, that the Blossoms do not forthwith discover the blast: An old experienced Country-man having once given me notice of a blasty Noon, (it being then a Sultry weather, and somewhat gloomy with the thickness of Exhalations, almost like a very thick Mist) and within a day or two shewing the proof upon the Cherry-Blossoms then flagging, but not much altering their Colour till two days more were past.

*The Noble Mr. Boyle suggests as proper for the approaching Season; That it may be tried,*

1. Whether Seeds (especially such as are of a hasty growth, *vid. Orpin, Lettice, Garden-cress-seeds, &c.*) will germinate and thrive in the exhausted Receiver of the said Engine?

2. Whether the Exclusion of Air from the *Sensitive Plant*, would be harmful to it?

3. Whether the Grafting of Pears upon *Spina Cervina* (the almost only *Purgative Vegetable* known in *England*) will produce the effect of communicating to the Fruit that purging quality, or not?

4. Whether *Silkworms Eggs* will be hatched in such an exhausted Receiver, in the Season proper for hatching?

To

To which may be added, the Trials of putting in a Vial full of water, some of those Herbs that will shoot and grow in water alone, including them in such a Receiver, and pumping out what Air you can, to see whether they will then shoot, or not?

And though some of these *Proposals* have been formerly begun to be Experimented, yet ought they to be diligently prosecuted, to see how far the Air is necessary to Vegetation; and whether Plants do indeed live as much upon the Air, as the Earth; and the Branches of them are rooted (as it were) *in* and quickned by the Air, as their Roots are planted and nourisht in and by the Earth?

The Experiment heretofore made of this kinde, was, That some Lettice-seed being sown upon some Earth in the open Air; and some of the same Seed at the same time upon other Earth in a Glas-Receiver of the above mention'd Engine, afterwards exhausted of Air; the Seed expos'd to the Air was grown up an inch and a half high, within eight days; but that in the exhausted Receiver, not at all. And, Air being again admitted into the said emptied Receiver, to see whether any of the Seed would then come up; it was found, that in the space of one week it was grown up to the height of two or three Inches.

## OBSERVATIONS

Concerning *Emmets* or *Ants*, their Eggs, Production, Progress, coming to Maturity, Use, &c.

*This was communicated by Doctor Edmund King, Fellow of the R. Society, at the Instance of the Publisher, as followeth.*

1. **T**Here have occur'd to my Observation but three sorts of *Ants*, commonly without Wings; *vid.* Very Black, Dark Brown, and the third sort of near the colour usually call'd *Philemors*.

2. Each kind inhabit by themselves in their several Banks; two sorts seldom or never being found together; and if either of the other two sorts be put into the black *Ants* Bank, 'tis worth observing, what enmity there is betwixt these little Creatures, and with what violence the *Black* ones will seize on the *Red*, never leaving to pinch them on the head with their *Forceps* or Claws, till they have kill'd them upon the place: which done, they will car-